



THE RARA RAG

Newsletter of The Rochester Amateur Radio Association, Inc.
Founded in 1931

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2019 RA RA ANNUAL AUCTION

SCOTT THEIS, W2LW, RA RA VICE PRESIDENT

It's time to dust off the equipment you no longer love or get ready to find a new treasure! The RA RA Annual Auction is coming Wednesday, November 6th. The entire November meeting will be dedicated to the auction; in fact, we'll be opening the doors early at 6:00PM to let sellers bring in the treasures they're hoping to go home without. At 6:30 members not selling can begin perusing the items to see them up close before they hit the auction block starting at 7:00. If you are not selling any items, please don't arrive before 6:30.

We will be providing stickers that you can use as you browse items. Place a marker on an item if you are interested in it. We will be using the markers to adjust the order of auctioned items to move things along a little faster and make things more interesting.

Our auctioneers will be Dick Goslee, KG2I, and Ed Gable, K2MP, back at it again using their incredible knowledge and humor to help sellers get top dollar for their items.

Some basics — The auction is a Members-only event (Members may bring one guest), so please renew your membership online if you haven't already. Our membership secretary, Tim Barrett, K9VB, will be at the entrance checking membership and helping members renew if they were unable to do so in advance.

Please bring up to three items you have that are radio related and that you feel may be of interest to a fellow ham. Each item should be clearly labeled with three important pieces of information: (1) Your name & call; (2) A description (is it working?); and, (3) Your desired starting price. Attached to the Rag is a form you can use which also can be [downloaded from the club's website](#).

Procedural notes: *Sellers*: Please bring a piece of cardboard to put under any item that could scratch the tables. Also, please note that the club will benefit by keeping 10% of the final sale price. *Buyers*: Be aware that we can only accept cash. All items are sold "as is". Complete procedural information is provided on page 4.

Please join in the fun even if you have nothing to sell! This is a great event and a nice way to spend an evening. Doors open for sellers at 6:00PM and for others at 6:30PM. We will be trying to wrap up around 10:00PM.

Again, the auction is Wednesday November 6th, 2019 during the regular meeting at the BSA, 2320 Brighton-Henrietta Townline Road, Brighton, NY 14623. Doors open at 6:00PM for sellers, 6:30PM to review, and the auction starts at 7:00PM.



BOARDZ BUZZ

SCOTT THEIS, W2LW, RARA VICE PRESIDENT

I am now in my third year as a board member and second year as an officer for RARA. I am honored to be able to help lead the club into the future to promote the hobby we all love and to service the Rochester Area.

I believe it is my responsibility both to assist and help manage the overall operation of the club and also to hand the next generation a club that is in good health and better than when I started.

As a board, we have done a lot in the past few years. While I am amazed by our achievements, that feeling is tempered by the objectives that remain ahead.

Building a New Club Database

A big challenge for Tim Barrett and myself is the development of a new membership database with a proper web interface that includes public facing and members-only facing sides of the website. The existing club management system is pushing 20 years old and has not been revised for a very long time. The underlying database engine is Paradox, which was retired in 2008, so there is not an easy upgrade path.

Most of what the Membership Secretary does is quite manual and requires redundant lists. For example, each renewal must be manually processed, points are added and removed manually, payment is manually processed. Even the generation of new/revised membership cards is a manual process. What makes the process ever more frustrating, is there is no direct export from the existing database.

Despite the challenges building a new database will bring, I believe that developing a new database will benefit both the Membership Secretary and the members of the club and will also be a tool to promote the club to the general public. Updating the database and creating a modern web interface will lay the foundation for a better member experience for years to come.

Marshalling Club Documents

Like most organizations, RARA has many documents, some important to the daily activities, some that should be saved for the next round of activities and some that should be archived for recordkeeping.

To date, this is an *ad hoc* process with stuff spread all over, with cloud ownership and custody a bit of a mess. For example, if a document is shared using Google Docs by a member, but that document is important to the club, the club has no control over the long-term disposition of the document. If that document is deleted by the owner or is unshared, oops!

We have been working on moving to G Suite for non-profits to hopefully gain better control of information and still be able to share access and control of certain documents.

Club Station

It is coming up to a year since the Board formally commissioned a requirements subcommittee that started working to formalize and prioritize station requirements.

We recently summarized the requirements which I presented to the general membership during the September meeting. This was a bit of a sobering meeting with respect to whether the club should engage creating and managing a station or whether this is a fool's errand that could bankrupt the club.

After the general meeting, in preparation for the board meeting the next day, I swallowed hard and looked at the survey results from the previous evening. Since there was little time, I focused on one question: "How important is a Club Station for RARA?" The results were dramatic, out of the 1 to 5 scale (5 being most important), the average was 4.0 with only two respondents ranking the importance as 1 and more than half ranking at 5.

The major reason the establishment of the Club Station project, and why I volunteered to lead the first phase, were the results of the August 2018 "The Future of RARA" discussion lead by Gary Skuse (KA1NJL). In that meeting, having a club station was rated as the most important of all the many possible goals and activities the club should undertake. As we finalize our document, one of the most difficult questions is what level of investment should the club engage in creating a station? Will such investment payoff in the long run and help expand the club to better fulfill our mission? Or is it better to invest in an alternative?

I would like to thank Brian O'Connor (KA2CGB), Tim Brown (WB2PAY), Bill Springer (N2HYQ) for their dedication to the process. What is left now is to complete the document and submit it to the board. And let the discussions begin.

Finally

The work of many members makes this club possible. Certain folks, in my short time on the board, have been the glue that holds major undertakings together. For example. Mike Moore (KC2NM) for Public Service, Tim Guyot (KB1POP) with the Hamfest and Tim Brown (WB2PAY) for Education. There are a lot of other less visible activities such as managing the Club's finances and equipment donations performed by Brian O'Connor (KA2CGB).

I would like to offer a special thanks to Don Vallone (KD2REU) for the two unsolicited videos he has created, one for this year's Hamfest and a recent one for the RARA Academy for HF in the Park. I would also like to thank all those who take pictures for the web and other online activities. Without such pictures, there is no effective way to let everyone know what's going on!

CALENDAR OF EVENTS

WEDNESDAY NOVEMBER 6, 2019 - RARA Annual Auction

7:00 PM at BSA Headquarters
2320 Brighton Henrietta Town Line Rd

THURSDAY NOVEMBER 7, 2019 - RARA Board of Directors Meeting

6:30 PM at Novaworks, 333 Metro Park, F-500

WEDNESDAY DECEMBER 4, 2019 - RARA General Meeting

SATURDAY FEBRUARY 15, 2020 WINTERFEST 2020

JUNE 6, 2020 RARA HAMFEST 2020

TBD RARA PICNIC 2020

RARA'S



The 2019 RARA Auction will be held on Wednesday, November 6.

Now is a good time to look around your shack, workbench, closet or garage for that radio, antenna, tester or accessory that another ham can put to good use. Take a few minutes to wipe it down and test it.

DETAILS IN THIS ISSUE.

Annual Auction

2019 AUCTION INFORMATION

The Annual RARA Auction will start at 7:00PM on Wednesday, November 6th at the BSA, 2320 Brighton-Henrietta Townline Road in Brighton. Schedule of events:

- 5:45PM – Volunteers set up room for the auction.
- 6:00PM – Doors open for Members to stage their sale items.
- 6:30PM – Buyers are invited to inspect the auction items.
- 7:00PM – Start of auction.

Note: RARA will NOT be offering refreshments at this meeting. Only bottled water is permitted in the meeting room.

Sellers

Look around your *Shack, Workbench, Closet or Garage* for that *Radio, Antenna, Tuner, Tool, Test Instrument or Accessory* that another ham can put to good use. Take the time to wipe it down and to test it. *Leave the junk box at home.* Only ham radio related items, please.

Because space is limited, please limit yourself to *up to 3 sale items per Member*. Complete the *Auction Item Description* form (below) before the meeting. Print it from the Rag (last page) or download the PDF at:

[Auction Item Description Form](#)

Once an item is placed for inspection it cannot be removed from the auction for a private same-day sale.

The Seller's Premium (commission) is 10% of sale amount, which will be rounded to the nearest dollar; minimum commission per item is \$1.

This event is Carry In, Carry Out: If your item doesn't sell then you must take it home.

Buyers

Each item auctioned is a private sale between the individual parties. RARA equipment is sold on an "as-is where-is" basis.

Cash sales only. All sales are final. The cashier will settle all transactions in whole dollars.

Members Only

Everyone needs to check in at the Membership desk. To avoid delays on Auction night just Sign Up or Renew your Membership online at:

https://www.rochesterham.org/membership_data.aspx



Each Member will be given *Item Interest Tokens* upon check-in. If you are interested in an item, attach one (or more) of your tokens to the *Item Description Form* before the auction begins. Items with more tokens will be brought up for auction sooner than later.

Members may bring one (1) guest only. A Guest may not enter until their sponsoring Member arrives. A Member may sell his/her Guest's item(s) as part of the Member's seller allowance.

Hazmat

Some Ham stuff can be hazardous. We need to protect the facility as well as everyone handling items. So, don't bring anything that is leaking or will leave a stain.

Items containing potentially hazardous materials such as mercury (older rectifier tubes), PCBs (older capacitors), beryllium (high power tubes) or lead (solder, lead-acid batteries) must not contaminate the facility. Any potential hazmat item must be contained in a clear zip-lock bag or in a plastic bucket, tote or similar container.

Finally...

Come and have fun! Save Time — Renew Your Membership Ahead of Time!

EDUCATION

TIM BROWN, WB2PAY, EDUCATION COORDINATOR

RARA ACADEMY WORKSHOPS

October Academy — HF OPERATIONS IN THE PARK

RARA's Fall Field Day was a successful educational event and social gathering.. Over 40 members and visitors participated.

Kudos to everyone who put the event together.

ANTENNAS AND RIGS ON DISPLAY:

- Paul Conaway, KD2DO, put up a **G5RV** with his **Air cannon**. Paul got the ends of the antenna up about 70ft. Paul used an **Icom IC-7300** to operate digital modes.
- Karl Heinz Kremer, K5KHK, installed the **Wolf River coil and 17ft vertical** and **Yaesu FT-857D** radio in record time. With 3 counterpoise wires reeled out from his home made 3D printer kite-winder spools, Karl Heinz was on the air making CW and SSB contacts within 15 minutes. Karl Heinz also displayed
 - ◊ a **Magnetic Loop** antenna,
 - ◊ A **40M EFHW** supported on a 33ft Kite Mast. The 33ft mast was anchored by a flag apole base under the front wheel of his automobile.
 - ◊ a **Firestick** antenna supported on a **camera tripod**
 - ◊ a **17ft fishing pole** as a support for a **20m dipole** antenna
- Todd Spath, N2TMS, erected a **dipole using interlocking fiber pole Military masts**.
- Tim Brown, WB2PAY put up a **Buddipole** supported by a **guyed Painters Pole**
 - ◊ A **6 meter Delta Loop** was also suspended from the Painters Pole.
- Tim Guyot, KB1POP, used the **weighted toss technique** to put up a **20M EFHW with the balun** he constructed at a previous Academy. Using a **Kenwood TS-440S**, Tim G. made his first DX QSOs: Belgium and Croatia. Tim is on his way to DXCC !!
 - ◊ Tim supplied several **12v Deep Cycle AGM batteries** to power rigs.
- Brian Duff, KD2SHV, erected a **2 meter homemade J pole** on a **Painters Pole** supported by a **homemade base** anchored with a 12v battery. Brian used the 2 meter antenna to communicate with ARES, WB2EOC, which was part of the ARRL SET weekend.
- Dennis Schumske, KG2DWS, demonstrated his **Elecraft KX3 with Pan Adapter** driving a **Magnetic Loop** antenna.
- Rodger Burkhart, W2RMB, had his **Air Cannon** and **HF Go Kit** on display.

SPECIAL THANKS:

Seth Irwin, KD2QZG, kindly provided Coffee and Bagels for the group. Left over Bagels were donated to the Aurora House, Hospice unit in Spencerport.

VIDEO DOCUMENTATION:

Don Vallone, KD2REU and George Lama, KC2OXJ produced a video for all to view.

<https://www.youtube.com/watch?v=Fkcr3uTQyWY&feature=youtu.be>

FUTURE FIELD OPERATIONS:

We will look into similar events to give people more opportunities to play with antennas and get on the air. (Ideally in a heated shelter)

November Academy — FT-8 & WSPR modes Saturday November 9th, 2019 (10am-1pm)

Session will be held at the **Gates Library, 902 Elmgrove Rd. just south of RT-531 Elmgrove exit.**

Topics:

- Weak signal modes: Even if you cannot hear the signal in the noise, the computer can still decode it
- Setting up your digital station
- Installation and configuration of software
- Propagation experiments with FT8 and WSPR - getting data from the internet
- Instant WAS with FT8?
- Alternative ways of creating WSPR signals

Karl Heinz Kremer, K5KHK, will host this Academy session

Latest Academy information is available at https://www.rochesterham.org/rara_academy.htm

THE ELMERS CORNER

Our next Elmers Corner will be at the Dec. 4th Meeting from 6:15pm to 6:45pm prior to the start of the regular meeting.

Let our Elmer help you with your questions or topics of interest.

Scott Theis, W2LW, will host the December session.

Silent Key

Warren E. Boudrie

AA2LQ

October 8, 2019

THE 15TH ANNUAL FAIRPORT LIFT BRIDGE REGATTA

MARK PEDERSEN, KC2UES, COMMUNICATIONS TEAM LEADER

FAIRPORT, NY. What a beautiful day for a regatta! Saturday, September 28 started out a bit damp, but that soon cleared and we had what amounted to a summer day for the regatta – great for the spectators.

We had a diverse range of ham radio operators – very experienced, to first-timers. One came from the east side of Syracuse to help us, and we had a couple of college professors. Our net control was an experienced firefighter, and his scribe (who created the radio log the planners rely on) is a lawyer. All said they'd like to participate next year.

We learned some communications lessons. We were using a simplex frequency, but some of our operators could not receive the transmissions from stations located far from them. Next year, I think we will go back to using a repeater, and probably the 146.61 ARES repeater, which has wide coverage. Although repeaters slow down the transmissions, they permit clear communications from one end of the regatta to the other with only a small wattage handheld radio.

We had some direct person-to-person communications from non-licensed operators (under the supervision of licensed HAMs) and that went well. The Chief Referee was able to communicate directly with various officials and I think he liked that he could do that.

Our coverage changed when the Regatta Director embarked on Safety Boat # 6. We had originally scheduled an operator to shadow the Director, and another operator to work on Safety # 6 – the two combined when the Director embarked, freeing up a radio operator to shadow another decision-maker. Safety Boat # 4's morning operator was having trouble with the squelch setting on his radio, so did not hear many of the transmissions from Net Control.

For the second year, we provided a scanner to the Master of Ceremonies, who could then listen in to the net and broadcast pertinent information to the spectators, helping them to know which boats were racing towards the finish, which races had been delayed, and which ones started.

This year, for the first time, we gave radios to the Sheriff, Fire Department, and Ambulance. Although they were not authorized to transmit on those radios, they could listen in and react to issues before we needed to try and relay information to them. In the past, we would send a foot messenger to the Fire or Ambulance crew to get them to respond to problems; and for the Sheriff, we had to call 911 or try to hail them on the marine radio (something we do not like to do from shore). I was able to observe first-hand how HAM radio improved reaction – a woman fainted onto the canal path near the end of the docks and the firefighters were standing right there, so they responded. But they wanted the ambulance paramedics and didn't have radio comms with them. Enter the HAM net, and a

call from me (I was standing with the firefighters when the woman fainted about 10' away from us) to net control, overheard by the ambulance crew, got the ambulance crew to respond immediately. That was great!

As we did last year, we received regular reports from the mid-course Safety Boat # 4 and from the start line as to boats rowing up to start, and reports when racers started and passed the mid-course. I was able to assist a videographer estimate a launch time for his unmanned aerial vehicle to capture some great video of our racers as they headed to the finish – including three boats side-by-side.

Parking communications were non-existent. I provided five FRS radios to the head of parking on Friday – and when I checked on Saturday, only one person had a radio, and no one was responding to him. I did station a ham operator with parking for the morning, but we really could use more coverage – and more regular parking volunteers. We should have had a volunteer at the back of the Qualitrol lot in communication with the person at the head of the lot to identify spaces (for example, for the two school buses that arrived while I was there). Next year, I would like to work with the parking volunteers earlier than the day before the race to help them understand how communications can facilitate what they're doing.

I am grateful to the HAMs and our scribe who participated: Tim WB2PAY; Shawn KC2KYB; Dawn KC2VJU; Jeff KD2RRB; Len KC2PCD; Dave WA2HOY; Mike KC2NM; Richard KD2PQN; Nick AF2M; Cindy (scribe).

FROM VHF GREENHORN TO JOURNEY- MAN: FM SIMPLEX FREQUENCIES

EV TUPIS, W2EV

This is an occasional installment of a RARA Rag series that is intended to give newly licensed amateurs insights that may expose them to aspects of the amateur radio hobby that they may not have considered before. This time, let's talk about "FM simplex" operation.

"Repeater" and "VHF" seem to go hand-in-hand in most people's mind, but there is a very rich and enjoyable experience awaiting those willing to explore the world of non-repeater ("simplex") VHF FM operation.

SIMPLEX, 2-WAY FM VOICE

In amateur radio, the term "simplex" refers to "direct" radio communication without having the signal relayed or repeated. Conventional thought makes such a thing seem futile on VHF and UHF frequencies, however such conventional thought is flat out wrong!

Both Monroe County RACES (MonroeCountyEmComm.org) and Orleans County RACES (ocarc.us) run nets and events on simplex to test their emergency preparedness. The Rochester VHF Group (rvhfg.org) regularly reminds

everyone to activate on FM simplex ahead of VHF contests. In fact, such VHF simplex contesters have made contact with stations as far away as Ontario Canada and the tall hilltops in Pennsylvania!

The "secret" to having fun on simplex is to either activate for a coordinated occasion (like a RACES drill or a VHF contest) or to monitor a "calling frequency" waiting for someone to call CQ (though it may be a long wait). Once contact is made on a calling frequency, it is traditional (but not required) to move to another frequency to continue the conversation.

Below is a chart of commonly used FM simplex frequencies for each VHF band.

Band	Calling Freq (MHz)	Others commonly used
6 m	52.525	52.490
2 m	146.520	146.49, 146.55, 146.58
135 cm	223.500	223.6
70 cm	446.000	446.100
35 cm	927.500	902.2, 903.2
23 cm	1294.50	1296.2

146.52 MHz is the most popular calling frequency by a very wide margin. Unlike repeaters, no CTCSS tone is needed. Because of that, interstate vehicles often listen and call there periodically, looking for other travelers. If you choose to monitor, waiting for someone to call, then simply set your squelch "barely muted". That way, even weak signals will break your squelch and get your attention.

The most popular FM frequency during CONTESTS is 146.55 MHz (but expect significant activity on 52.525, 223.5 and 446.0 as well). There are three major VHF contests throughout the year: January, June and September. All three include FM simplex activity. The Rochester VHF Group does a good job of letting everyone know when a contest is coming up.

VHF contests are especially exciting because mobile stations will drive to hilltops in order to contact as many others as possible and over the longest possible distances. Keep this in mind if you have a radio in your car; drive to a hilltop for the next contest. Contesters *love* mobile stations (called "rovers") to contact.

SIMPLEX FOXHUNTING

The secular world has "geocaching" and "orienteering". Mix-in amateur radio as a "steroid" and you have "fox hunting", where participants attempt to locate a hidden transmitter using a number of different strategies.

It is important to note that this sport does NOT require a license because participants simply receive a signal (from a licensed operator). For that reason, inviting unlicensed youth to participate is encouraged! Consider joining-in on a "fox hunt" when one is advertised.

Locally, the XRX radio club (xarc.us) sponsors a couple each year (spring and

fall); and some hamfests will include a fox hunting competition as an activity. If you go to an XRX fox hunt, you can expect plenty of guidance and coaching to be offered. They are a very friendly bunch.

When it comes to VHF fox hunting, there are two "main" frequencies to be aware of (and to program into your radio): 146.565 MHz (FM) and 439.695 MHz (FM). "Foxes" (hidden transmitters) in the most simple events will transmit on 146.565 MHz and participants will try to find them using directional antennas and orienteering skill. The second frequency (439.695 MHz) is third harmonic of 146.565 MHz. It is used when hunters get so close to the hidden transmitter that it is too strong to accurately locate. Being a third harmonic, the signal is much weaker and allows the hunter to get a better bearing.

SPACE: THE INTERNATIONAL SPACE STATION

There are licensed amateur radio operators on the ISS. When they are not busy with their real job, they can cause quite a "pile up" making contact with their fellow amateurs back on Earth.

Contacting the ISS takes a little more skill because they listen for Earth stations on 144.490 MHz while they transmit to Earth stations on 145.800 MHz. Don't be "that guy" who forgets and transmits on the same frequency being used by the ISS crew. :-)



Contacting them will take a little planning because of their work schedule and need to be above your horizon. Here is a simple tool to help with assuring the ISS is above the horizon: <https://www.n2yo.com/?s=25544> (checkmark "Draw footprint" at the bottom of the map).

An FM radio with 25 to 100 watts will make the grade if everything else lines up.

IN CONCLUSION

Most amateur radio operators have a VHF radio or two. Get the most out of yours by making sure you've programmed in the full constellation of VHF simplex frequencies to be sure you don't miss out on any fun. Then, make contact with any of the groups mentioned above to connect with other enthusiasts who are enjoying "FM, beyond the repeater".

So, This Happened...

KARL HEINZ KREMER, K5KHK

Here are a few remarkable things that happened to me over the last few weeks.

September 20th was the annual RARA Banquet. Besides meeting old friends and making new ones, a presentation and food, there are also a couple awards that are given away every year. I was quite a bit surprised when my name was called for the "Member of the Year" award.



I would like to sincerely thank the RARA board for this honor, and I promise to not rest on my laurels and keep on doing what I've been doing since I got involved with the club a little more than two years ago.

And just because it's hard to fill a wall these days with QSL cards, I received another piece of wall decoration:

This shows that even with only some effort, you can win a contest (or at least,



as in this case, win a category in a special operating event). The POTA (Parks on the Air) organization is holding this "Support Your Parks" event every year to

get more people out into parks to operate using different modes, but also to get the “chasers” or “hunters” more involved by offering nice plaques. I won the “Most Digital Contacts” award as a hunter. I actually operated outside, from my deck (it was a beautiful summer day), and had a Raspberry Pi hooked up to the radio. That allowed me to chase SSB, CW and digital park activations. There were not too many digital operators in the parks (as is obvious by the number on the plaque), but apparently I had enough contacts to qualify.

And, in the same spirit, here is another win in a niche category (from the email that announced the results of the “JAY HUDAK MEMORIAL 80M SPRINT - 2019” organized by the 070Club of PSK31 operators):

QRP – 1st Place was **Karl, K5KHK** of Rochester, NY. Karl also won first place QRP in the 40M Firecracker Sprint. **Second Place** was **Andrew, W3SW** of Binghamton, NY. Their performance under present propagation conditions on noisy 80M was outstanding.

The new “All Amateurs Welcome” policy continues to enhance our overall experience. Special recognition is due to the two non-member stations who showed very good scores, winning in the Low Power category. **Keith, WC4T** has joined as member #2704 and **Randy, KK4OVW** is working to get his 50 QSO log submitted for membership. We had one other non-member submit a log. Paul, KD2DO of Fairport, NY reported 2 QSOs.

Nice shoutout to Paul, KD2DO for his efforts. So, using QRP in a contest when most people use a lot more power is a pretty easy way to rack up some points. The same strategy did unfortunately not work last weekend, when the 070Club had it's annual 160m contest. Even though I managed three QSOs last year, this year my result was 0.

If this continues, I may need a bigger wall...

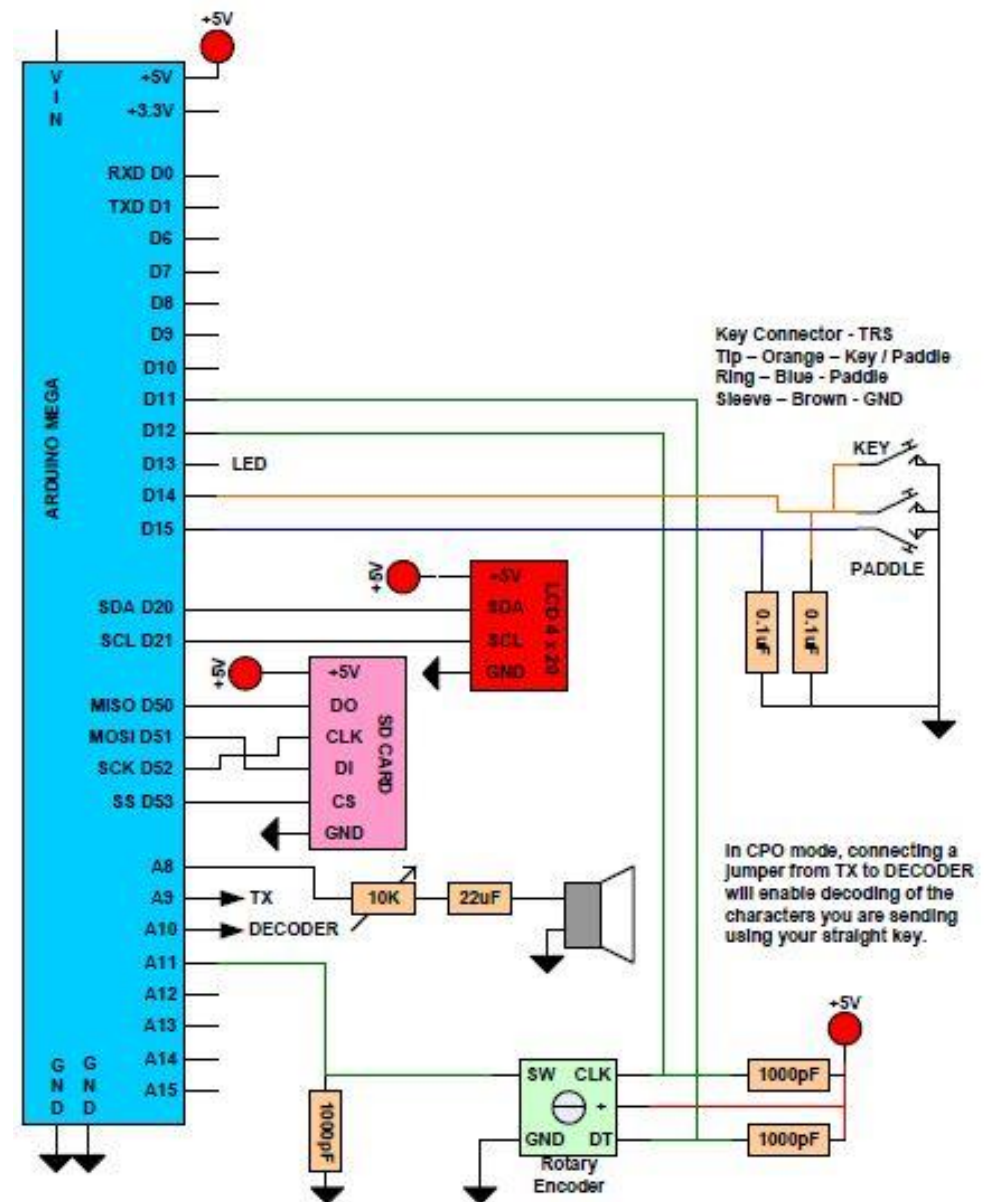
MORSE CODE MULTI TOOL - FINALE

FOREST SHICK, WA2MZG

Have you heard the expression – products are not released from engineering – they escape! Well, the same sentiment applies to finishing a project. I keep thinking I am all done and then another idea or an old untried idea pops up. Here is one more revision of the MCMT presented in the October 2019 issue of the RAG.

If you have already seen the November issue of QST you may have read the article about an Arduino based CPO. Well, this follows the same path but as an upgrade to the October project.

The biggest change was that I switched from an Arduino NANO to an Arduino MEGA. Adding the support for an SD Card required too much RAM for the NANO and fits nicely in the MEGA.



Schematic of the MCMT using an Arduino MEGA
NOTE: The capacitors on the key / paddle inputs are now 0.1uF

Here are the new features:

- To the Random Character Generator, I added random word generation. There are 4 text files that are added to the SD Card:



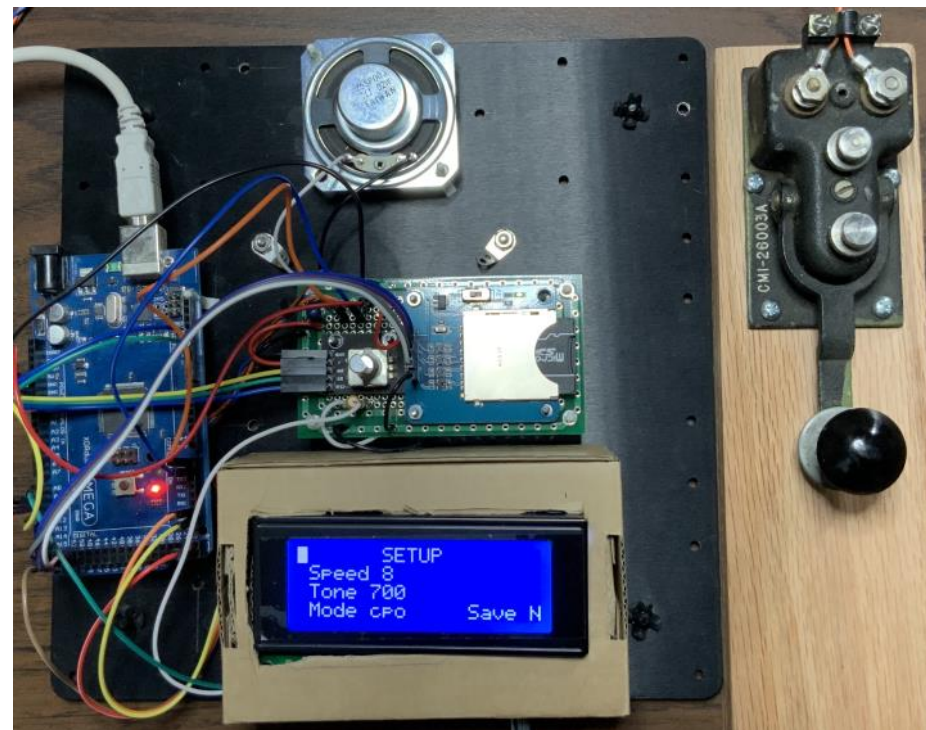
RANDOM CODE GEN
WPM 20
3 Letter Words
ART 12V 432 AMP DST

- ⇒ TWO.txt – a series of 2 letter words such as state abbreviations, AC, AM, 9V, 2M, etc.
- ⇒ THREE.txt – a series of 3 letter words: SEE, SIT, ARE, BOY, BOX, 80M, 12V, 128, etc.
- ⇒ FOUR.txt – a series of 4 letter words: BIAS, 7:30, 1296, POLE, MAIN, OHIO, GATE, etc.
- ⇒ FIVE.txt – a series of 5 letter words: ANODE, BLACK, FIELD, MAINE, 13.6V, 7.030
- ⇒ The words are randomly accessed and sent in a similar manner as random characters
- ⇒ With a text editor you may create your own list of words. With some code manipulation you can add longer word files
- ⇒ Also added to the RCG is the ability to send a long text file. You copy up to 2500 characters of text to a file named TEXT.txt and save it to the SD card.
- A new feature of the CPO mode is the decoding of what you are sending. There is a speed adjustment to center the decoder around the speed you are sending so timing for dits, dahs and spaces can be detected. You can use this mode by adding a jumper between the TX and DECODE terminals on the MEGA (see schematic).



CODE PRACTICE OSC
WPM 10 Decode
Element Speed
M CQ CQ DE WA 2 MZG

Of course, nothing is finished unless you make a change to the user interface. The selection of RCG functions was moved from setup screen to the RCG screen.



Ideas to explore:

- Adding a sound detector such as the [Sound Detector](#) from Sparkfun will enable you to connect your receiver audio to the sound detector and the sound detector to the DETECTOR input of the MEGA and you have a simple Morse Code decoder for your radio. Note that some modification to the sound detector board is required.
- With an AD9850 and firmware from the March 2019 issue of QST, "Super Simple 6-Meter SDR Transceiver", you can build a 6 or 10M FM transmitter
- Also using the AD9850 and the TX pin on the MEGA you could make a simple very low power CW transmitter. See Analog Devices Application Note AN-423, Amplitude Modulation of the AD9850 Direct Digital Synthesizer.

As before, if you are interested send me an email and I will send you the Arduino Sketch of this project. fshick3@gmail.com

Final NOTE – in the October issue, the capacitors on the key inputs were 1000pf. They should have been 0.1uF



2019 RARA ANNUAL BANQUET

SCOTT THEIS, W2LW, RARA VICE PRESIDENT

I had the privilege of being the master of ceremonies at the annual banquet this year and it was certainly a lot of fun. 40+ attended to eat excellent food, watch the award presentation, win door prizes and experience a good presentation on FirstNet® by Jim Stefano, W2COP.

Awards were presented for Ham of the Year and Member of the Year. The Ham of the Year Award was presented to Mark Pedersen, KC2UES, in recognition of his work in public service. Karl Heinz Kremer, K5KHK, was awarded Member of the Year for his dedication and extra effort in leading several RARA Academy sessions, initiating the Elmer's Corner, and writing technical articles for the Rag.



Mark Pedersen, KC2UES
2019 Ham of the Year



Karl Heinz Kremer, K5KHK
2019 Member of the Year



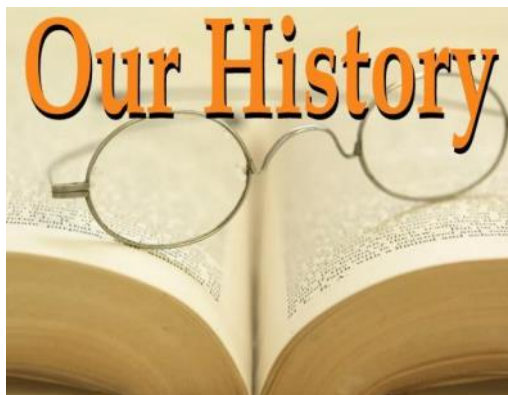
RAGS OF THE PAST

ED GABLE, K2MP, RARA HISTORIAN



20 Years Ago, November 1999

For 49 years Rochester Amateur Radio operators have been gathering to enjoy and participate one of RARAs most talked about activities, the annual November auction. Although the auction has been a RARA standard for longer than that, it was from 1970 and on that one could look at a wall calendar and say "Oh, it's RARA Auction month." Twenty years ago this issue fell right in line and announced the November 5 auction, with Dick and Ed, at the Henrietta Fire Hall. Reported herein, by Keith Freeberg N2BEL, was the announcement of what would be the beginning of many years of partnership with the Rochester Museum and Science Center and Rochester Radio Amateurs to provide an annual Holiday Technology show. The beginning was low key with just two tables with chairs and a bunch of local amateurs chatting about ham radio. Lloyd Cave's (WB2EFU, now N2PU) in his "RagChew" column wrote about a Y2K change that saw our long term WNY Section Manager Bill Thompson W2MTA, retiring. Replacing Bill was a Rochester area Harris/RF employee and active contester, Scott Bauer WA2LCC (W2LC). The annual Tune-Up Clinic was the activity at the next Rochester VHF Group meeting as reported by Tim Stoffel, NS9E. Different was the venue where the folks at Adaptive Broadband, 175 Science Parkway, Rochester, were hosts for the evening. Likewise, Tom English, N2YJY, reporting for the Rochester Radio Repeater Association (RRRA) reported that their meeting would also be a tune up clinic to make sure all those crystals were right on frequency. As important to the success of RARA as the Code and Theory classes, was the formation of the Radio Coaches program. John Woika, W8JW, wrote telling of the latest coach's program that involved over thirty 6th graders from the Thomas Jefferson Middle School. The program includes students building a CPO and brass telegraph key developed by Peter Fournia, W2SKY. In his monthly "DX Report" column Ed Gable, K2MP, reported the disqualification of QSO's with Burundi, 9U, due to internal license issuing problems. Better news was the return of Iran (EP) to the bands along with Catham Island ZL7, and Burkina Faso XT. Tim MaGee WB2KAO, Licensing Class Director, told that the current Novice, Technician and General Class code and theory instructions are going well with good attendance. With regret it was reported Helen Armstrong WA2YPT and John Sullivan KA2LGF, were reported as silent keys. From the Want Ads you could buy a Drake MN-2000 antenna tuner for \$200.00 from Ed K2MP. A newer commercial advertiser is Walker Tower doing antenna and tower maintenance by Andy Walker KA2RBW.



40 Years Ago, November 1979

If you read the "20 years ago" column printed in this issue you know what the opening line is: "...the ever popular RARA annual action with auctioneers Ed Gable K2MP and Alan Komenski AC2K..." A rare article by RARA Rag Editor Dwight Hill, K2KWK, told of the problem with intruders moving into our ham bands. He cited Castro's SW broadcast stations (7.1 Mhz and below) and the famous and now silent Russian Woodpecker as examples. After years of the FCC only allowing Morse and Baudot codes used on the ham bands, the addition of ASCII coded information is welcome news for computer enthusiasts. RARA President Alan Komenski AC2K, reported that despite Congressman Horton going to bat for RARA, our plea to obtain the W2XT

callsign for RARA was unsuccessful. W2XT, Eddie Dunn, was a past RARA President and a popular radio personality on WHAM radio. Alan continued his article to say that the important annual Simulated Emergency Test (SET) was a good success with emphasis on communications between Monroe County's emergency medical facilities, with George Negus, N2OIU, as team leader. Roger Williams, W2NES, with pen in hand for the Rochester Radio Repeater Association, tells that the next meeting will be their FM Clinic. A change in venue for this meeting brings members to the home of GEARS, the Gleason Amateur Radio Club, on University Avenue. With regret it was reported that Carl Jeerings, W2CXO, was a silent key. Carl was instrumental in rural electrification and brought power to Macedon, NY, for the first time. There were no Want Ads in this issue but Heathkit, at 937 Jefferson Road, advertised the Heath SB-104A at a \$130.00 discount.

VE TEAM

The next **ALWAYS FREE** testing session:
 Saturday November 16th (Third Saturday)
 Rochester Institute of Technology
 Kate Gleason College of Engineering
 Gleason School of Engineering
 Room 3139, Bldg. 9
 Use "J" parking lot

Registration at 9:45AM
 Testing at 10:00AM

You do not have to preregister.

To avoid giving your SSN go to:
<http://wireless.fcc.gov/uls/index.htm?job=home>
 Register and bring the resultant FRN to the exam.

For more info and a map:
https://rochesterham.org/license_testing.htm

Don Kiser - AC2EV
 RARA Board member
 VE Team Leader
 585-613-1035

See the December RAG
 for October test results

New licensees names are in BOLD

CW ELMERS

Name	Call	Area	Email
Ned Asam	W2NED	Pittsford	w2ned@frontiernet.net
Tim Brown	WB2PAY	Ogden	tjbrown@rochester.rr.com
Pete Fournia	W2SKY	Penfield	pfournia@gmail.com
Bill Hopkins	AA2YV	Brighton	whopkin4@naz.edu
Bob Karz	K2OID	Webster	rkarz@rochester.rr.com
Joe Rowe	AG2Y	Webster	ag2y@rochester.rr.com

RADIO ELMERS

Name	Call	Area	Email
Tim Brown	WB2PAY	Ogden	tjbrown@rochester.rr.com
Dave Carlson	N2OA	Batavia	kdcarlso@gmail.com
Lawrence Hill	N2AJX	Henrietta	lawrence.hill@rit.edu
Bill Kasperkoski	WB2SXY	Pittsford	wb2sxy@arri.net
Don Kiser	AC2EV	N Greece	dkiser100@gmail.com
Karl Heinz Kremer	K5KHK	Chili	k5khk@khk.net
Tim Magee	WB2KAO	Greece	585-704-5747
Peter Schuch	WB2UAQ	Perinton	pschuch@rochester.rr.com
Forest Shick	WA2MZG	Webster	fshick3@gmail.com
Dave Timmons	W2DST	N Greece	dstimmons@gmail.com
Dan Waterstraat	W2DEW	Henrietta	higreen@rochester.rr.com

RaRa CALENDAR

TIM BARRETT, K9VB, MEMBERSHIP SECRETARY

November 2019						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1 Silent Key Memorial Contest Zombie Shuffle	2 AWA Museum Open 1pm - 5pm IPARC Contest CW Ukrainian DX Contest ARRL Sweepstakes, CW
3 IPARC Contest SSB Ukrainian DX Contest EANET Sprint High Speed Club CW Contest ARRL Sweepstakes, CW	4 RSGB FT4 Contest Series ARS Spartan Sprint	5 Phone Fray	6 RaRa Annual Auction, BSA HQ, Brighton Henrietta TLR CW Ops Mini-CWT Test UKEICC 80M Contest ROC City Net 8:00pm 3.826 MHz	7 RaRa BoD Meeting 5:45pm Nova- works 333 Metro Park Rochester 14623 ARES Net 146.61 MHz 7pm NCCC Sprint NRAU 10M Activity Contest SKCC Sprint (Europe)	8	9 AWA Museum Open 1pm - 5pm RARA Academy – WSPR & FT8 - Gates Library WAE DX Contest, RTTY PODXS 070 Club Triple Play 10-10 Fall Contest, Digital CQ-WE Contest AWA Bruce Kelley 1929 QSP Party NA SSB Sprint Contest
10 PODXS 070 Club Triple Play WAE DX Contest, RTTY PODXS 070 Club Triple Play 10-10 Fall Contest, Digital CQ-WE Contest AWA Bruce Kelley 1929 QSO Party	11 PODXS 070 Club Triple Play RSGB Autumn Series, Data	12 Phone Fray	13 ROC City Net 8:00pm 3.826 MHz SIARC 7.30pm CW Ops Mini-CWT Test	14 ARES Net 146.61 MHz 7pm NCCC Sprint	15 YO International PSK31 Contest	16 AWA Museum Open 1pm - 5pm ARRL EME Contest LZ DX Contest All Austria 160M Contest RSGB 1.8MHz Contest ARRL Sweepstakes, SSB
17 ARRL EME Contest LZ DX Contest Homebrew & OldTime Equipt Party ARRL Sweepstakes, SSB	18	19 RDXA 7.30pm Monroe Cty EOC Phone Fray	20 ROC City Net 8:00pm 3.826 MHz CW Ops Mini-CWT Test RSGB Autumn Series, SSB	21 ARES Net 146.61 MHz 7pm NCCC Sprint	22	23 AWA Museum Open 1pm - 5pm CQ Worldwide DX Contest, CW
24 CQ Worldwide DX Contest, CW	25 QCX Challenge	26 Phone Fray QCX Challenge SKCC Sprint	27 ROC City Net 8:00pm 3.826 MHz CW Ops Mini-CWT Test UKEICC 80M Contest	28 ARES Net 146.61 MHz 7pm NCCC Sprint	29	30 AWA Museum Open 1pm - 5pm Russian WW Multimode Contest

NEWS FROM AREA CLUBS

MONROE COUNTY ARES / RACES NEWS

Monroe County Amateur Radio Emergency Service (ARES)® is an amateur radio public service organization based in Monroe County, New York, and is open to all licensed amateur radio operators. Monroe County Radio Amateur Civil Emergency Service (RACES) is a program of the Monroe County Office of Emergency Management. We participate in training and emergency exercises so that we can serve other agencies during times of communication failure.



The Monroe County Amateur Radio Emergency Service, Inc. holds its meetings on the fourth Thursday of each month except in July, August and November and December. Anyone interested, members and non-members, are welcome to attend.

The November 2019 ARES Meeting is scheduled to be held on: Thursday, November 21, 2019, 6:00 PM, at the Red Cross, 825 John St., W Henrietta. Meetings are held at the John St. building on odd numbered months.

On even numbered months the meetings are held at the Monroe County EOC, 1190 Scottsville Rd. (Media Room, 2nd floor, north end).

If the doors are locked, call WB2EOC on the 146.61 MHz (-) 110.9 Hz PL repeater.

Monroe County ARES/RACES meets on the air every Thursday of the month at 7:00 PM, on the N2MPE 146.61 MHz (-) 110.9 Hz PL and 444.45 (+) 110.9 Hz PL repeaters. Our club callsign is WB2EOC.

There is no net on nights when we hold our regular meeting, generally on the 4th Thursday of the month.

WEB: www.monroecountyemcomm.org

Facebook : Monroe County Amateur Radio Emergency Service, Inc.

Twitter @MCARESNY

Severe Weather Alerts: Winter may bring severe weather in the form of heavy snow storms, strong winds, and flooding. If you experience severe weather, especially when accompanied by damage to property in your area, listen to your local ARES/RACES repeaters for information. While official ARES/RACES activation could be a possibility, it is more important that we open a spontaneous net simply to share information about weather conditions in your immediate area. Don't wait for someone else to do it. Pick up the microphone and start a net. Have each check-in station give you a situational awareness report and emer-

gency power report. If you don't have a copy of the directed net protocol, you can find one at the WEB address listed above. (Activities/ARES Net/ Net Script/ Downloads). We encourage all amateur radio operators to take a free Skywarn TM class offered by the National Weather Service. The schedule of classes can be found at [https:// www.weather.gov/buf/Skywarn](https://www.weather.gov/buf/Skywarn)

Monroe County ARES

Ralph Dutcher, Net Control - KD2BDZ@arri.net

ROCHESTER DX ASSOCIATION, RDXA

RDXA meets the 3rd Tuesday of every month (September through June) except for December, which is the Annual Holiday Banquet. Meetings are open to everyone and all are encouraged to attend.



Meetings are held at the Monroe County EOC 1190 Scottsville Rd. (second floor), Rochester, NY 14624 at 7:30PM.

ROCHESTER RADIO REPEATER ASSOCIATION

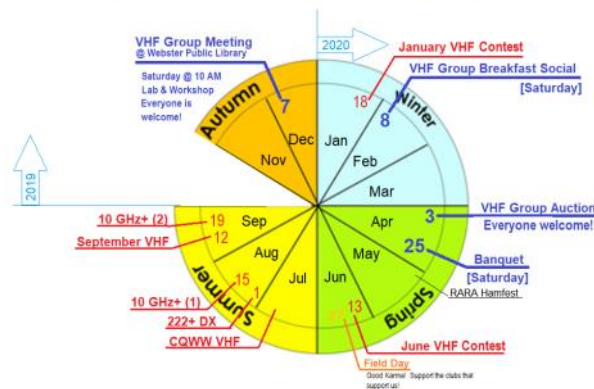
The Rochester Radio Repeater Association, RRRA invites you to attend its November 15, 2019 meeting. Meetings are held on the 3rd Friday of the month in the Pittsford Town Hall Basement starting at 7:30 PM. RRRA will host its annual "Tune Up Clinic" for members of RRRA. Bob Shewell, N2HJD and Bob Odell, N2BZX will bring their test equipment and run the clinic. They can test the performance of your equipment and make adjustments if necessary. Don't forget to bring your accessories if you suspect adjustments are necessary. Accessories could be charged batteries, power cords, and documentation. If time permits they may be able to look at non member equipment. Remember no basket cases because we want to give everyone a chance to participate. For those that don't participate you can see the test equipment and watch how it is used. Hope you can make it.

The RRRA officers for 2019-2020 are Bob Shewell, N2HJD President, Bob Odell, N2BZX Vice President, ED Wilkonski, KC2WM Secretary, and Bob Smith, NS2B-Treasurer / Membership Chairman. RRRA also accepts donations to the club. If you are not currently a member and want to support RRRA, you can join at our monthly meeting or on our web site www.k2rra.org

ROCHESTER VHF GROUP

The Rochester VHF Group has abandoned "boring business meetings" (and "death by PowerPoint") and adopted a live "Lab & Workshop" approach instead, and everyone is welcome to attend! The next one will be at 10:00 AM on Saturday, December 7th at the Webster Public Library. The Lab will demonstrate how electromagnetic waves bend in the troposphere. The Workshop will demonstrate receiver performance of various VHF radios, including a variety of HT's and higher-end transceivers; just in time to let attendees make better decisions during the upcoming gift-giving season! www.rvhfg.org

The VHF Groups' 2019-20 Club Year



XRX AMATEUR RADIO CLUB

The XRX Amateur Radio Club meets the 2nd Thursday of each month. The meetings are 6PM at the Webster Recreation Center. Look for details on our website <http://xarc.us>

DRUMLINS AMATEUR RADIO CLUB

The Drumlins Amateur Radio Club meets every third Wednesday of the month at 7:30 PM at the Wayne County EMO/Sheriff's Office 7376 State Hwy 31 #1000, Lyons, NY 14489. Doors open at 7 pm, meeting starts at 7:30 pm. Announcements will be made on the 146.685 repeater. The Drumlins ARC website address is <http://drumlinsarc.us/>

AMATEUR RADIO ASSOCIATION OF THE SOUTHERN TIER, ARAST

ARAST meets the third Thursday of every month at the Town and Country Fire Department on Gardner Rd in Horseheads New York. Chemung County ARES (CCARES) meets the first Tuesday of the month except February at Harris Hill. See www.ccares.info for details. CCARES covers the entire area in Chemung, Schuyler and Steuben counties and all are welcome.

Communicators are needed to help out with the 2019 Wineglass Marathon October 6, 2019 (one week following the Hamfest). If you would like to help out, contact the emergency coordinator: emergencycoordinator@stny.rr.com

Our website is still under construction. It is anticipated that construction will continue well into the year. Until that is finished check us out at www.arast.info .

Don't forget to check out our repeaters when you visit the area. The N3AQ 147.36(+) and the 146.70(-) are the principal 2 meter repeaters. Also Echolink is available using the call sign KA2BED-R. Check it out. A full list of available repeaters that can be heard in the twin tiers area surrounding Chemung County can be found at www.arast.info/arast_website/public/repeaters.php .

COMMUNITY AMATEUR RADIO CLUB, CARC

If you are interested in being a part of this forward thinking and active club, visit us at a meeting or join us on one of our weekly nets. We meet at the Hoag Library (134 S. Main St. Albion, NY) on the first Saturday of each month at 7PM. Each meeting has a brief training/refresher period with upcoming topics including: net protocol, repeater set-up/maintenance, and digital signaling. The club holds a net every Sunday evening at 8pm (winter) and 9PM (summer) - 0100 UTC Monday - on 147.585 simplex, and we host the Thursday Night Social Net, Thursday at 8:30PM on 147.285+. We'd love to hear you check-in!

DIGITAL COMMUNICATIONS ASSOCIATION OF PERINTON, DCAP

DCAP members continue to experiment with leading edge digital communication modes. We were formed in 1994 to foster the development of local and regional packet radio networks using AX25 and TCP/IP. Today we have members using the club sponsored DSTAR repeater (KB2VZS on 444.8MHz), several personal and publicly accessible DSTAR hotspots, Yaesu System Fusion systems on non-club repeaters and DMR systems through repeaters and personal hotspots. DCAP members meet for breakfast at 7AM nearly every Saturday morning at Rikki's Family Restaurant in the village of Fairport and everyone is welcome to join us. Talk in is on the KB2VZS analog repeater on 146.715MHz with a PL tone of 110.9Hz.

KEUKA LAKE AMATEUR RADIO ASSOCIATION, KLARA

The purpose of our association is to:

- promote interest in Amateur Radio communication and advancement of the radio art.
- conduct programs, training, and exercises that enhance the skills of the members, and educate the community.
- develop ties with other services and establish relationships with community organizations.
- provide emergency communication services.
- promote enjoyable Amateur Radio related events.

The association was incorporated in 1991 and has been a vibrant part of the community ever since. We have a very active VE testing program. We also participate in numerous public events (the Wineglass Marathon and the Wine

Country Classic Boat Regatta are two of the largest).

We operate a system of three repeaters (which are linked), providing a large area footprint for two meter FM amateur use. Please see our website for details. (klara.us)

Our meetings are held on the second Wednesday of each month at the Civil Defense and Fire Training Center on Route 54 in Bath, NY.

SQUAW ISLAND AMATEUR RADIO CLUB, SIARC

The Squaw Island Amateur Radio Club (SIARC) meets every second Wednesday of the month at 7:30PM at the Ontario County Safety Training Facility, 2914 County Road 48, Town of Hopewell. We have License Exam Testing every other month which begins at 6:30PM, The next meeting will be Wednesday, November 13th. There will be License testing this month. The meeting presentation will be on Cyber Security. 73's Steve Benton VP SIARC WB2VMR

WESTSIDE AMATEUR RADIO CLUB

The mission of the Westside Amateur Radio Club is to provide emergency communications services to the community, to assist other civic organizations, to promote the technical craft of amateur radio through class training and testing, to mentor new members, and enhance fellowship among radio amateurs.

The Westside Amateur Radio Club meets on the first Tuesday of the month, 7PM, at the Prudential Kares Realty, 3313 Chili Ave., Rochester, NY 14624. Park / enter on the left side of the building and meet in the lobby.

The talk in repeater for all meetings is the WR2AHL Repeater 146.760MHz - 110.9. AllStar, Echolink, and web streaming connections are available. Website: <http://WestsideAmateurRadio.club>

INTERLOCK ROCHESTER - K2HAX - ROCHESTER'S HACKERSPACE

Visit our website at <http://www.interlockroc.org/>, contact us at info@interlockroc.org, or find us in #interlock on Freenode IRC.

ROCHESTER MAKERSPACE

For more information visit <https://www.makerspacerochester.org/hamradio>

GENESEE VALLEY AMATEUR RADIO ASSOCIATION

Email n3dsp@lafireline.net for details.

ASTRONOMY SECTION ROCHESTER ACADEMY OF SCIENCE

For more information visit <http://www.rochesterastronomy.org/>

THE AMATEUR'S CODE

Originally written by Paul M. Segal, W9EEA (1928)

THE RADIO AMATEUR IS:

CONSIDERATE	Never knowingly operating in such a way as to lessen the pleasure of others.
LOYAL	Offering loyalty, encouragement and support to other amateurs, local club, and the American Radio Relay League, through which Amateur Radio in the United States is represented nationally and internationally.
PROGRESSIVE	With knowledge abreast of science, a well built and efficient station and operation beyond reproach.
FRIENDLY	With slow and patient operation when requested, friendly advice and counsel to the beginner, kindly assistance, co-operation and consideration for the interests of others. These are the hallmarks of the amateur spirit.
BALANCED	Radio is an avocation, never interfering with duties owed to family, job, school or community.
PATRIOTIC	With station and skill always ready for service to country and community.

RArA MARKETPLACE

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1/4 page: 5.1 x 3.8 \$300

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Contact us for details at
editor@rochesterham.org.

RARA OFFICERS, DIRECTORS AND COORDINATORS

OFFICERS

President: Tim Guyot, KB1POP	(585) 406-3163	timguyot@gmail.com	Treasurer: Brian O'Connor, KA2CGB	(585) 721-2346	ka2cgb@arrrl.net
Vice-President: Scott Theis, W2LW	(845) 774-9809	sa_theis@hotmail.com	Secretary: Karl Heinz Kremer, K5KHK	(585) 503-7214	k5khk@khk.net

DIRECTORS

Tim Barrett, K9VB	(585) 582-2108	tim.k9vb@gmail.com	Don Kiser, AC2EV	(585) 613-1035	dkiser100@gmail.com
Tim Brown, WB2PAY	(585) 750-2087	tjbrown@rochester.rr.com	George Lama, KC2OXJ	(585) 371-8324	KC2OXJ@gmail.com
David Enright, K3WHD	(585) 737-3657	denright1228@gmail.com	Mike Moore, KC2NM	(585) 721-0011	mikemoore@ieee.org

ACTIVITY COORDINATORS

Club Historian	Ed Gable, K2MP	egable@rochester.rr.com	Public Service	Mike Moore, KC2NM	mikemoore@ieee.org
Club Station Trustee	Jim DiTucci, N2IXD	n2ixd@arrrl.net	Raffle Administrators	Forest Shick, WA2MZG Jeff Sonstein, KD2RRB	wa2mzg@arrrl.net
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Hamfest Co-Producers	Contact a RARA Board Member to join		RARA RAG Editor	Forest Shick, WA2MZG	editor@rochesterham.org
VE Team	Don Kiser, AC2EV	dkiser100@gmail.com	Refreshments	Rich Hoffarth, K2AXP	rhoffarth2000@yahoo.com
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Meeting Audio	Brad Allen, KB2CHY	ballen@frontiernet.net	Webmaster	Scott Theis, W2LW	webmaster@rochesterham.org
Membership Secretary	Tim Barrett, K9VB	tim.k9vb@gmail.com			

ROCHESTER AREA RADIO CLUB CONTACTS

Antique Wireless Association (AWA)

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Amateur Radio Association of the Southern Tier (ARAST)

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Astronomy Section Rochester Academy of Science

Mark Minarich: mminaric@rochester.rr.com

Community Amateur Radio Club (CARC)

Joe Gangi, AC2NB: ac2nb.carc@gmail.com

Digital Communications Association of Perinton (DCAP)

Gary Skuse, KA1NJL: ka1njl@arri.net

Drumlins Amateur Radio Club Ltd. (DARC)

Alan Cook, K2MPE: alancook948@gmail.com

Fisherman's Net Amateur Radio Club

Jim Sutton, N2OPS: jim@otrym.org

Genesee Valley Amateur Radio Assn.

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Monroe County ARES / RACES

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Rochester Institute of Technology ARC

Jim Stefano, W2COP: wireless@mail.rit.edu

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Joe Merolillo, K2ZX: k2zx52@gmail.com

Rochester DX Association (RDXA)

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Rochester Makerspace

David Duckles: rocmakers@gmail.com

Rochester Radio Repeater Association (RRRA)

Bob Shewell, N2HJD: bshewell@frontiernet.net

Rochester VHF Group (RVHFG)

Ev Tupis, W2EV: w2ev@yahoo.com

Squaw Island Amateur Radio Club (SIARC)

Steve Benton, WB2VMR: sbenton2@rochester.rr.com

Westside Amateur Radio Club

Justin Grigg, KC2EQU: communications@westsideamateurradio.club

XRX Amateur Radio Club

Brian Donovan, K2AS: k2as@outlook.com

DECEMBER RAG DEADLINE NOVEMBER 15, 2019



**RARA meets at 7PM on the first
Wednesday of each month. Join us at:**

Seneca Waterways Council, BSA Headquarters
2320 Brighton Henrietta Town Line Rd
Rochester, New York 14623

GET DIRECTIONS













Rochester Area Repeater Listing

THE RARA RAG

Published by

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P.O. Box 93333, Rochester, NY, 14692-8333
Hotline – (585) 210- 8910

Website – <http://www.rochesterham.org>

Auction Item Description					
seller's callsign	make and model			reserve price	
description					
condition: (circle one)					
as new recently tested OK operational when retired unknown repairable for parts					
Description and condition information presented by the seller is assumed to be complete and accurate. All sales are on an as-is where-is basis. Cash settlement only. All sales are final.			buyer's callsign	sales price	
interested bidders: attach your token below					
					
					

Auction Item Description					
seller's callsign	make and model			reserve price	
description					
condition: (circle one)					
as new recently tested OK operational when retired unknown repairable for parts					
Description and condition information presented by the seller is assumed to be complete and accurate. All sales are on an as-is where-is basis. Cash settlement only. All sales are final.			buyer's callsign	sales price	
interested bidders: attach your token below					
